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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM E. WEBLER, ANDREJ M. CHUDY,
MARC M. JALISI, KEVIN M. PHILLIPS, MICHAEL D. WHITT,
and SUSAN NORTON

Appeal 2008-4538
Application 10/025,515
Technology Center 3700

Decided:¹ February 12, 2009

Before TONI R. SCHEINER, ERIC GRIMES, and MELANIE L.
McCOLLUM, *Administrative Patent Judges*.

GRIMES, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to an optical instrument, which the Examiner has rejected as anticipated. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

The Specification discloses “intracorporeal optical devices for use within a body lumen. . . . In particular, the invention is directed to a rotatable ferrule for use in an optical guidewire, interface devices for connecting an optical guidewire with peripheral devices, and methods of using these devices” (Spec. 1, ¶ 0001). “It is often useful to capture an optical fiber with a rigid or durable sleeve to protect the fiber and to provide an effective mechanical connection between an optical fiber and other devices. Such a sleeve is termed a ‘ferrule.’” (*Id.* at 5, ¶ 0009.) The Specification also states that “[a]s used herein, a ‘ferrule’ is a substantially cylindrical element attached to an end of an optical fiber” (*id.* at 24, ¶ 0095).

Claims 1-5, 8, 9, 17, 19, and 31-34 are on appeal.² Claims 1 and 17, the independent claims, are representative and read as follows:

1. An elongated intracorporeal optical instrument, comprising:
 - a. an elongated shaft having a longitudinal axis and proximal and distal portions having ends, the proximal portion having a substantially constant outer diameter, an optical pathway configured for passing optical radiation, and an internal surface having a proximal portion and defining an internal chamber within the elongated shaft extending to the optical pathway;
 - b. an elongated optical fiber extending substantially an entire length of said internal chamber of said elongated shaft; and
 - c. a ferrule directly connected to said optical fiber and having a distal portion with a diameter and an outer surface, a proximal portion with a substantially constant outer diameter and an outer surface, the outer diameter being substantially the same as the outer diameter of the elongated shaft

² Claims 6, 7, 18, and 35 are also pending: claim 18 has been withdrawn from consideration, claim 35 has been allowed, and claims 6 and 7 have been objected to but not rejected (Office action mailed Aug. 30, 2006, page 2).

proximal portion, and configured to have a first position in which said ferrule is secured to the elongated shaft and a second position in which the ferrule is released from the elongated shaft and is free to rotate around said longitudinal axis.

17. A system comprising:

an optical instrument having an optical connector and a rotatable mechanical connector, and an optical guidewire, said optical guidewire comprising:

an elongated shaft having a longitudinal axis, a diameter and proximal and distal portions having ends, the proximal portion having a substantially constant outer diameter, an optical pathway in the distal portion configured for passing optical radiation, and an internal surface defining an internal chamber within the elongated shaft extending to the passage in the distal end;

an elongated optical fiber extending substantially an entire length of the internal chamber of the elongated shaft; and

a ferrule directly connected to said optical fiber and having a distal portion and a proximal portion, the proximal portion having a substantially constant outer diameter being substantially the same as the outer diameter of the shaft proximal portion and configured to have a position in which the ferrule is free to rotate around said longitudinal axis with respect to the elongated shaft, said ferrule being configured to engage said optical connector effective to pass optical radiation between said optical fiber and said optical instrument, said ferrule further configured to engage said rotatable mechanical connector effective that said ferrule rotates when engaged to said mechanical connector while said mechanical connector rotates.

The claims stand rejected as follows:

- Claims 1-5, 8, 9, 17, 19, and 31-34 stand rejected under 35 U.S.C.

§ 102(b) as anticipated by Forkner; and

- Claims 1-5, 8, 9, 17, 19, and 31-34 stand rejected under 35 U.S.C.

§ 102(b) as anticipated by Hamlin.

ANTICIPATION BY FORKNER

The Issue

The Examiner has rejected claims 1-5, 8, 9, 17, 19, and 31-34 under 35 U.S.C. § 102(b) as anticipated by Forkner. The Examiner finds that Forkner discloses an endoscope that meets all of the limitations of the claims on appeal (Answer 3-5).

Appellants contend that Forkner's device lacks "a ferrule having an outer diameter which is substantially the same as that of the recited elongated shaft proximal portion, as is required by independent claims 1 and 17" (Appeal Br. 5-6) and "a ferrule having a first position where it is secured to the elongated shaft and a second position where it is released from the shaft," as recited in claim 1 (*id.* at 6).

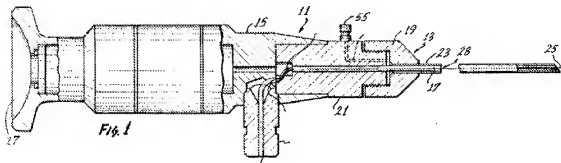
The issue with respect to this rejection is: Does Forkner disclose an optical instrument including a ferrule as defined in claims 1 and 17?

Findings of Fact

1. The Specification states that "[a]n 'optical pathway' may be a window, aperture, plurality of windows or apertures, an optical fiber, a void, or any other object or material through which optical radiation is able to travel" (Spec. 23, ¶ 0093).
2. The Specification states that "a rigid or durable sleeve to protect [an optical] fiber and to provide an effective mechanical connection between an optical fiber and other devices . . . is termed a 'ferrule'" (*id.* at 5, ¶ 0009.)
3. The Specification states that "[a]s used herein, a 'ferrule' is a substantially cylindrical element attached to an end of an optical fiber" (*id.* at 24, ¶ 0095).

4. Forkner discloses an endoscope that includes a light-transmitting rod (Forkner, col. 1, ll. 41-45).

5. Forkner's Figure 1 is reproduced below (with unnecessary reference numerals omitted):



“FIG. 1 shows an endoscope 11 which generally comprises a tubular, disposable distal section 13 and a reusable eyepiece housing 15. The distal section 13 includes a tube 17 of a suitable metal, such as stainless steel, a nut 19, a connector 21 and an irrigation cannula 23” (*id.* at col. 2, ll. 56-60).

6. Forkner discloses that “[i]mage-transmitting means transmits an image from a distal end 25 of the distal section 13 so that an image can be viewed at a viewing location 27. The image-transmitting means includes an elongated image-transmitting rod 28 extending through the tube 17” (*id.* at col. 2, ll. 64-65).

7. The Examiner interprets the “elongated shaft” recited in claim 1 (part a) to be met by the cannula 23 and nut 19 of Forkner’s device, “the proximal portion (proximal portion of 19) having a substantially constant outer diameter” (Answer 3).

8. The Examiner interprets the “ferrule” recited in claim 1 (part c) to be met by connector 21 of Forkner’s device, which has a “constant diameter outer surface (surface shown in Fig. 1 containing fitting 55 . . .) that is

substantially the same as the outer diameter of the proximal portion of the shaft,” i.e., nut 19 (*id.* at 3-4).

9. The Examiner concludes that Forkner’s device inherently meets the “first position/second position” limitation of claim 1 (part c) because “[t]hreads (not numbered but shown in Fig. 1) between the proximal portion of the shaft (on nut 19) and the distal portion of the ferrule (21) allow[] a secured position and a released position, . . . [in which] the shaft (23, 19) will inherently be able to rotate ‘freely’ (by rotation of the nut guided by the threads or once the nut is separated from the ferrule)” (*id.* at 4.)

Principles of Law

“[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000).

“[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

“Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Analysis

We agree with the Examiner's finding that Forkner's device includes all of the limitations of claim 1, for the reasons set out in the Answer (pages 3-4) and summarized above.

Appellants argue that "the Examiner has erred in concluding that nut (19) and cannula (23) of Forkner et al. define an elongated shaft," because they are not identified by Forkner as parts of an elongated shaft and because they are identified as separate items, and therefore "it is illogical to conclude that these distinct structures define structure corresponding to the elongated shaft" (Reply Br. 5).³

This argument is not persuasive. The fact that Forkner labels nut 19 and cannula 23 with separate reference numerals does not mean that they cannot be considered parts of the same element for other purposes. For example, Forkner separately labels metal tube 17, nut 19, connector 21 and irrigation cannula 23, but states that all of these elements are parts of distal section 13 (Forkner, col. 2, ll. 58-60). Appellants have provided no persuasive reason to conclude that the elongated shaft recited in claim 1 cannot be interpreted to read on Forkner's nut 19 and cannula 23 collectively.

Appellants also argue that "the Forkner et al. connector (21) does not function as a conventional ferrule in that it is not described as providing

³ Appellants also argue that Forkner "does not teach that the nut 19 and cannula 23 form part of the light transmitting fiber 41" (Appeal Br. 5). However, as the Examiner pointed out (Answer 7), the rejection does not rely on characterizing nut 19 and cannula 23 as part of light-transmitting fiber 41.

reinforcement or to prevent splitting” (Reply Br. 5). Appellants’ Specification, however, expressly defines a ferrule as “a substantially cylindrical element attached to an end of an optical fiber” (Spec. 24, ¶ 0095). That definition, not the conventional one, applies here. Forkner’s connector 21 is substantially cylindrical and connects to the end of image-transmitting rod 28; it therefore meets the Specification’s definition of a ferrule.

Appellants also argue that Forkner does not teach “a ferrule having a first position where it is secured to the elongated shaft and a second position where it is released from the shaft” (Appeal Br. 6). We disagree. As discussed above, the Examiner has provided a reasonable explanation of how Forkner’s device meets this limitation. Appellants have not identified any defect in the Examiner’s reasoning.

Finally, Appellants argue that Forkner does not teach “a ferrule configured to engage a rotatable mechanical connector such that the ferrule rotates when engaged to the mechanical connector,” as recited in claim 17 (Appeal Br. 6).

The Examiner found that this limitation is met as well:

The optical and mechanical connection of the ferrule (21) to the eyepiece housing (15) forms optical and mechanical connectors. Since the eyepiece housing is inherently rotatable in space, the mechanical connector will be rotatable and the ferrule will rotate “when engaged to said mechanical connector while said mechanical connector rotates.”

(Answer 5.) We agree with the Examiner’s reasoning, and Appellants have not identified any defect in it.

ANTICIPATION BY HAMLIN

The Issue

The Examiner has rejected claims 1-5, 8, 9, 17, 19, and 31-34 under 35 U.S.C. § 102(b) as anticipated by Hamlin. The Examiner finds that Hamlin discloses an endoscope that meets all of the limitations of the claims on appeal (Answer 5-6).

Appellants contend that Hamlin does not teach:

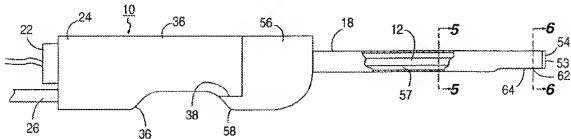
- “a ferrule directly connected to an optical fiber” (Appeal Br. 7);
- “a ferrule having an outer diameter which is substantially the same as an outer diameter of an elongated shaft defining an optical pathway” (*id.*);
- “a ferrule having a first position where it is secured to the elongated shaft and a second position where it is released from the shaft” (*id.* at 8); or
- “a ferrule configured to engage a rotatable mechanical connector such that the ferrule rotates when engaged to the mechanical connector” (*id.*).

The issue with respect to this rejection is: Does Hamlin teach an optical instrument having a ferrule as defined in claims 1 and 17?

Additional Findings of Fact

10. Hamlin discloses an endoscope that includes a disposable or sterilizable sheath (Hamlin, abstract).

11. Hamlin’s Figure 1 is reproduced below:



The figure shows a “side, partially cut-away, elevational view of a preferred embodiment of the assembled device” (*id.* at col. 2, ll. 62-63).

12. Hamlin’s Figures 3 and 4 are reproduced below:

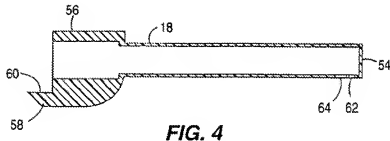
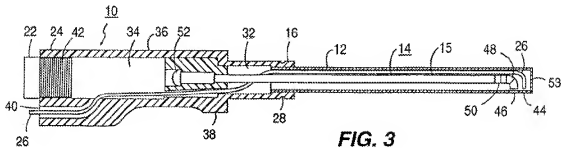


Figure 3 shows “a side cross-sectional view of the device of FIG 1 without the sheath” (*id.* at col. 2, ll. 66-67) and Figure 4 shows “a side cross-sectional view of the sheath” (*id.* at col. 3, l. 1).

13. Hamlin discloses that the sheath shown in Figure 4 includes “light transmitting glass or quartz windows 62 and 64 which are in registration with windows 44 and 46 of the lens tube” in the assembled device (*id.* at col. 6, ll. 13-15).

14. The Examiner finds that the “elongated shaft” limitations of claim 1 (part a) are met by Hamlin’s “elongated sheath (18, Fig. 4) having a longitudinal axis and proximal (56) and distal portions (54) having ends, the proximal portion (56) having a substantially constant outer diameter . . . , an

optical pathway configured for passing optical radiation (64), and an internal surface” defining an internal chamber (Answer 5).

15. Hamlin discloses that the device includes

optical system 14 . . . [which] comprises the fiber optic bundle 26 through which light from a light source (not shown) is transmitted through the lens tube 12. . . . The reflected light entering optical window 46 then passes through a series of optical imaging devices including a right angle rod prism 48, a set of objective lenses 50, a rod lens 15 and a video relay lens 52.

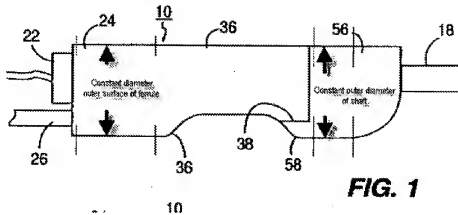
(*Id.* at col. 5, ll. 17-29.)

16. The Examiner finds that Hamlin’s device includes “an elongated optical fiber (26 or note that optical system 14 can be an optical fiber . . .),” as recited in claim 1 (part b) (Answer 6).

17. Hamlin discloses that the device includes “a hollow central support member 10 which acts as a handle for holding the assembled device 1 when in use; a narrow elongated lens tube 12 having an appropriate lens system 14 contained therein said tube 12 being mounted within and extending from the distal end 16 of the support member 10” (Hamlin, col. 4, ll. 44-49).

18. The Examiner finds that Hamlin’s device includes “a ferrule (10) directly connected to said optical fiber (Fig. 3) and having a distal portion (16) . . . [and] a proximal portion (24) . . . , the outer diameter [of the proximal portion] being substantially the same as the outer diameter of the elongated shaft proximal portion” (Answer 6).

19. The Examiner’s annotated version of Hamlin’s Figure 1 (Answer 6) is reproduced below:



The figure includes annotations indicating the Examiner's interpretation of the parts of Hamlin's device that correspond to the proximal portion of the ferrule and proximal portion of the elongated shaft recited in claim 1, and showing that they have substantially the same outer diameters.

20. The Examiner finds that Hamlin's "ferrule (10) . . . [is] configured to have a first position in which said ferrule is secured to the elongated shaft (Fig. 1) and a second position in which the ferrule is released from the elongated shaft (Figs. 3 and 4) and is thus free to rotate around said longitudinal axis" (Answer 6).

21. Hamlin discloses that the "proximate end of the camera hole 34 is provided with means, such as a threaded portion 42, so as to removably accept the solid state video camera 22 therein" (Hamlin, col. 5, ll. 12-14).

22. As relevant to claim 17, the Examiner finds that Hamlin's device includes "an optical instrument (camera 22, left side of Fig. 3) including an optical connector (lens, CCD chip optionally connected to the optical system 14, Fig. 3), [and] a mechanical connector (threads 42)" (Answer 5).

Analysis

We agree with the Examiner's finding that Hamlin's device includes all of the limitations of claims 1 and 17, for the reasons set out in the Answer (pages 5-6) and summarized above.

Appellants argue that the "Hamlin et al. patent does not teach a ferrule directly connected to an optical fiber. . . . Significantly, hollow central support member 10 which the Examiner has characterized as defining a ferrule, is not directly connected to a fiber optic bundle 26 which the Examiner relies upon as a teaching of an elongated optical fiber." (Appeal Br. 7; see also Reply Br. 8.)

This argument is not persuasive. Hamlin discloses that fiber optic bundle 26 runs the entire length of support member/ferrule 10 (Hamlin, Fig. 3) and that lens system 14 ends at video relay lens 52 in the middle of support member/ferrule 10 (*id.*). We agree with the Examiner that the configuration of Hamlin's device is reasonably interpreted as meeting the limitation of claims 1 and 17 that the support member/ferrule 10 is "directly connected" to an optical fiber.

Appellants also argue that Hamlin does not teach "a ferrule configured to engage a rotatable mechanical connector such that the ferrule rotates when engaged to the mechanical connector," as recited in claim 17 (Appeal Br. 8).

This argument is not persuasive. Hamlin discloses that a camera is connected to the disclosed device by threads 42. We agree with the Examiner's reasoning (Answer 11) that the ferrule 10 would rotate when engaged via the mechanical connector (threads 42 or the complementary threads on camera 22) when the mechanical connector rotates.

Appellants also argue that Hamlin's device does not include "a ferrule having an outer diameter which is substantially the same as an outer diameter of an elongated shaft defining an optical pathway" (Appeal Br. 7) or "a ferrule having a first position where it is secured to the elongated shaft and a second position where it is released from the shaft" (*id.* at 8). However, we agree with the Examiner's reasoning (Answer 6) regarding how these limitations are met by Hamlin's device. We also agree with the Examiner (Response to Reply Br. 4) that element 10 of Hamlin's device has a proximal portion with a substantially constant outer diameter, notwithstanding Appellants' argument (Reply Br. 8) to the contrary.

CONCLUSIONS OF LAW

The Examiner has shown that Forkner and Hamlin disclose optical instruments that include all of the elements, including the ferrule, recited in claims 1 and 17.

SUMMARY

We affirm the rejections of claims 1 and 17 under 35 U.S.C. § 102(b) as anticipated by both Forkner and Hamlin. Claims 2-5, 8, 9, 19, and 31-34 fall with claims 1 and 17 because they were not argued separately. 37 C.F.R. § 41.37(c)(1)(vii).

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

dm

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